Job Aid 5

Exchange 2000 Requirements Template

Keeping in mind the scope of this guide, this template will help you determine whether your current downlevel Exchange implementation will benefit if you add Exchange 2000 servers. These servers would be used for consolidating Exchange resources from your current organization onto fewer servers.

Exchange 2000 Requirements Template: Further Details

For the purpose of this guide, you are looking at how you can get “the most bang for the buck” by adding Exchange 2000 into your current architecture. For most large organizations, this means reducing the number of Exchange mailbox servers you have deployed. It may also mean placing public folders or some connectors onto a machine that is currently hosting mailboxes, now that Exchange 2000 allows you to segregate these operations.

What you will need

- Current Exchange system documentation
- Current Exchange Site and Server diagrams
- Current Windows 2000 Active Directory diagram
- Current physical network diagram

Server Consolidation Discussion

One thing you need to understand in any server consolidation is what can be consolidated, and how this consolidation might affect other parts of the Exchange system.

First and foremost, unless we are discussing mailboxes, you cannot consolidate like objects onto the same system. This means that if you already have public folders on a system, you cannot host another replica of the same public folders; or if you already have an Internet connector, another Internet connector (not a virtual SMTP connector, but another physical connector) cannot be created.

Having said this, any time you place a connector that uses a mailbox onto a system that hosts mailboxes, you are going to need to be sure the connector mailbox can be taken offline without impacting user access to mailboxes. This means you should place the connector mailbox in its own database, with the user mailboxes in other databases. This same recommendation holds true for public folders, but since they cannot be in the same database as mailboxes, this is more obvious.

How the different parts will impact each other, there are several areas to consider: RAM, CPU, and drive-space are the primary of these. The following paragraphs will discuss these.

As with all versions of Exchange, having a large amount of RAM is important. However, since these are all Exchange processes using the RAM, you do not have the same worries you might have if they were separate applications. For example, if this is Exchange 2000 and SQL Server 2000, the two applications might require more memory than each would separately. With only Exchange 2000, though you need to be sure you install enough RAM, Exchange will handle memory allocation on its own.

As with RAM, processor is only an issue if the processors in a system are not sufficient for their tasks. If you have scaled them properly, Exchange and its processes will be sure to use each processor.

This leaves us with drive-space. In Exchange 5.5, all databases share the same directory on the drive, along with the same log files. With Exchange 2000, this is no longer the case. Each storage group shares the drive-space within itself, not with other storage groups. Additionally, a server can host four storage groups, and a storage group can host as many as five databases.

An additional advantage in Exchange 2000 that is related to databases, is that any single database can be taken offline for maintenance while the others are all still operational. This allows you to shut down and remove a connector or public folder database from a system without impacting the mailbox databases that it also hosts.

To sum this up, as long as you are sure there is enough RAM and fast enough processors in your system, you can deploy mailboxes, public folders, and some connectors all on the same system without impacting other components. You may decide to place each type of resource into its own storage group to ensure that even logs are not shared. You will also not want to consolidate connectors to legacy messaging systems. If these are connectors to systems that will not be needed, there needs to be a strong business driver to move them to Exchange 2000.

Assess Current Messaging System

Having a high-level overview of what you might be able to consolidate, we now get to what you might want to do in your organization. In order to truly benefit from server consolidation, you need to have some of the following in your current environment:

- A large number of mailboxes hosted on multiple Exchange servers in a central datacenter
- Multiple Exchange sites, each with connector servers and mailbox servers, that are remotely managed

Note that for each Exchange organization, these “large numbers” are relative. You may have fifteen mailbox servers, but for valid reasons of your own, you do not want to consolidate them. At the other extreme, you may only have two servers in your organization (one for mailboxes, one for an Internet connection), but feel they need to be consolidated. This is completely up to you to determine.

Using Visio 2000 to Map the Current Organization

You can use Microsoft Visio 2000 to help assess your current infrastructure. Visio 2000 can directly access your Exchange 5.x or your Windows 2000 infrastructure and build a diagram of it. You can use this diagram as a starting point for any system modifications you wish to explore.

Determine Consolidation Strategy

Once you have decided you want to consolidate your servers, you need to build a strategy for consolidating them. This goes beyond determining how many servers you want in your organization. It means building a desired number of servers for each Exchange site, then determining which services will be consolidated.

For the purposes of this job aid, we will look at the standard office type, since they are common to most of the existing Exchange deployments. These office types are: Global Headquarters; Regional Branch Office; Large Branch Office; Medium Branch Office; and Small Branch Office. We will look at the general configuration for each, then follow this with a discussion of whether you would want to perform an Exchange server consolidation in this type of office.

Intra-office Consolidations

In this section, we're going to examine your Exchange infrastructure and determine whether you should consolidate servers in any given office. As a prelude to this, you might want to look at using the network discovery tool available in Visio 2000. This tool allows you to map out your current network infrastructure, and your Windows 2000 and Exchange 5.5 organizations. This information will help you decide where you can consolidate your servers.

Global Headquarters

A global headquarters is an office that is the central focus of any organization. There may be network connections from this location to other locations, or this may be the only location for the organization, but if you think of this as Rome in the statement an "All roads lead to Rome", you understand what a global headquarters is.

With most Exchange organizations, a global headquarters has multiple Exchange servers, not only for mailboxes, but for public folders and connectors, too. These connectors may be site connectors, Internet mail connectors, or connectors to other messaging systems.

This type of site is ripe for server consolidation. Even if only the Exchange mailbox servers are consolidated, this can reduce the number of servers by more than half. The starting point for this site would be determining how you want the services consolidated. If there are multiple public folder servers, each hosting parts of the public folder hierarchy, these can be consolidated and replicated to ensure redundancy. You can then add mailboxes into separate databases on these servers. If you have Internet connectors or Exchange site connectors (or other strategic connectors), you can upgrade these servers then add mailboxes to them (again, using separate databases for the mailboxes).

Regional Branch Office

To continue the analogy, a regional branch office is the "Rome" for a geographic area, but it is below the global headquarters in the corporate hierarchy.

In a regional branch office, there are services for local users, and there are connections to downlevel offices and the global headquarters. Note that the other offices may not have local Exchange servers. If this is the case, a regional branch office is much like a large branch office and should be treated as such.

Since a regional branch is going to host not only mailboxes for local users, but also connectors for downlevel offices, there are obviously multiple servers. However, these connector servers may be so busy with messaging traffic to the other offices that you may not want to add the local mailbox load. In this case, you could consolidate mailboxes and possibly local public folder replicas, but you should probably leave the connector servers as they are.

Large Branch Office

A large branch office is much like a regional branch without downlevel offices. It is directly connected to the global headquarters or to a regional branch, but normally has services only for its own users. There can be downlevel connections to very small offices that access the large office for all their services, but for the most part, these can be thought of as extensions of the large office.

In a large branch office, we can normally assume there are several mailbox servers, possibly a public folder server, and normally one connector server (two if there are redundant connectors). This office may or may not be its own Exchange site. Server

consolidation in this office will most likely consist of mailbox server consolidation, which could be followed by some, if not all, of the other services being consolidated.

Medium Branch Office

Much like a large branch office, a medium branch has no downlevel connections and may be connected to either a regional branch or the global headquarters. However, the number of users in the medium office is an order of magnitude smaller than the large office.

Your Exchange configuration in a medium office is normally one or two servers. If there are two servers in the office, you will be able to consolidate them onto a single server (which you may also make the Windows 2000 domain controller for this office). You obviously will not be able to consolidate the single server office unless you place other services onto the Exchange 2000 server.

Small Branch Office

A small branch office is another step down from the large branch office. The number of users is an order of magnitude lower than a medium office, and there will be few services offered locally. A small branch office normally has no local Exchange server, and as such will not be part of a consolidation discussion.

Inter-Office Consolidations

Many times, an organization will have invested in greater bandwidth since they originally designed their Exchange infrastructure. If you are in this position, you may be able to centralize your mailbox servers, and have your users connect to their mailboxes across the WAN.

In order to take advantage of this possibility, you will have to consider at least two other factors. If you have multiple Exchange 5.5 sites, you may have to consolidate Exchange sites **BEFORE** you are able to start moving to Exchange 2000. You will also have to be sure you have sufficient bandwidth to satisfy your service agreements to your users. If you are able to meet these issues, you can easily consolidate servers from remote offices into datacenters.

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